ONONDAGA COUNTY PUBLIC ENTITIES

Metropolitan Sewage Treatment System

Ley Creek Sewage Treatment Plant

City of Syracuse
Town of Camillus
Town of DeWitt
Town of Liverpool
Town of Marcellus
Town of Solvay
Public Owned/Operated Landfills

It is recognized and documented that raw, untreated, and partially treated sewage has been discharged to Onondaga Lake or its feeder streams of Bloody Brook, Ley Creek, Harbor Brook and Nine Mile Creek by Onondaga County and its public entities until at least 1985.

Observations have been reported of runoff from and leaching of publicly owned or operated landfills contaminating feeder streams of Onondaga Lake.

A program to eliminate industrial toxic pollutants, those that would interfere with the treatment process, did not commence until the 1970's. Secondary treatment of sewage by the county began about 1979 and tertiary treatment of wastewaters was not fully operable until 1985.

It is not surprising that organic solid waste, sedimentation from the sewage discharged into the lake, is reported to be twelve feet thick in some parts of the lake. Lack of oxygen near the bottom of the lake precludes or greatly reduces the degradation of this sediment.

It is also noted that in 1979 the level of mercury in fish flesh from Onondaga Lake increased, reversing the downward trend detected since the abrupt decrease of mercury discharge mandated in the production of chlorine in 1970. Although several explanations were advanced for the reversal, it should be recalled that in the construction of the secondary and tertiary treatment facilities in the late 1970's and early 1980's, the county diverted raw sewage to Onondaga Lake from 1977 to 1981 with operating problems of the new modifications continuing until 1985. Tests on the plant's sludge indicate an increasing mercury content in the early 1980's.

Additionally, it must be remembered that from about 1922 to 1950 the sedimentation sludges of the treatment plant, if not released directly into the lake, were pumped to various Allied-Signal disposal beds along Onondaga Lake thereby possibly adversely affecting runoff and groundwater entering the lake from these areas.

METROPOLITAN SYRACUSE WASTEWATER TREATMENT SYSTEM

650 West Hiawatha Boulevard
Syracuse, New York

1868	The City of Syracuse appointed its first Sewage Commission.
1870-1916	The untreated sewage entered Onondaga Lake from Onondaga Creek, Harbor Brook, and the intercepting sewers.
1907	The condition of the creeks were so bad that the State Legislature created the Syracuse Intercepting Sewer Board for the removal of sewage from Onondaga Creek and Harbor Brook.
1907-1926	The Syracuse Intercepting Sewer System was constructed.
1916-1922	The Onondaga Creek and interceptor discharges of untreated sewage entered Onondaga Lake via the Barge Canal Harbor.
1922	An outfall sewer was constructed to convey the sewage directly into Onondaga Lake, approximately 1700 feet off the southern shore.
Early 1920s	The Erie Canal is filled and became Erie Boulevard.
1921(?) 1950	Settled sludge from the main plant is pumped through a five inch wrought iron main to the Solvay Process Company's waste disposal lagoons.
1925	The first sewage treatment plant operated by the City of Syracuse was constructed at the southern end of the lake on Hiawatha Boulevard just west

of the present Onondaga Creek discharge location. The sewage was chlorinated and pumped to three sedimentation tanks and then discharged into the lake by the outfall sewer.

The plant was a primary treatment facility only and was subject to extremely high storm flows.

1925-1950 Effluent from the sedimentation tanks is discharged directly into Onondaga Lake from the Outfall Sewer.

1931 The original Village of Marcellus sewage system, consisting of two Imhoff tanks and sludge drying beds, is being constructed.

1933 Onondaga County Sanitation Department is established.

1935 Ley Creek Sanitary District (Clay, Salina, City of Syracuse) is established. The Sewage Treatment Plant is constructed.

1940 First Ley Creek treatment sewage plant went into operation.

1949 Ley Creek treatment plant capacity is doubled.

1950-1953 A change in the location of sludge disposal resulted in untreated sewage being discharged via the treatment plant outfall sewer directly into Onondaga Lake. The solids were pumped from the sedimentation tanks directly to the lake.

1954 West Side Sanitary District, part of Metro, is formed.

Ley Creek Extension No. 1 and No. 2 Districts is established.

Late 1950s	The Onondaga County Public Works Commission assumed responsiblity for sewage treatment for the City of Syracuse plus portions of Onondaga County. The plant was designed to provide primary treatment plus seasonal chemical treatment with anaerobic sludge digestion. Approximately 15 million gallons per day of raw sewage was being discharged, during dry weather, when the county took over the interceptor sewers from the city.
1958	The Village of Marcellus sewage treatment is modified by adding two clarafiers, and replacing the Imhoff tanks with sludge digesters.
1960	**The present Metro plant was put into operation and included sedimentation basins which were equipped for chemical regulation.** The character of the sewage going into the Metro plant changed; the majority of the organic level was coming in a dissolved state, not in suspension in a dissolved state, which meant it would not settle out even with chemicals. The organic material was not being removed to any great extent.
1960	Metropolitan Syracuse Treatment Plant District Extension No. 1 was established to include the Waring Road Sanitary District in DeWitt.
1960-1979	The Metropolitan Treatment Plant provided primary treatment only removing from 25% to 40% of the pollutants in the wastewater.
1961	A force main was constructed from the Ley Creek Treatment Plant to the Metropolitan Treatment Plant.
1962	The Department of Drainage and Sanitation becomes responsible for the sewage treatment of waste

from both the City of Syracuse and Onondaga County.

1963 The Nine Mile Sanitary District is formed.

Ley Creek Extension No. 3 District is established.

1964 **The West Side Sanitary District Extension No. 1, part of Metro, is formed.**

1965 The Nine Mile Sanitary District Sewage Pumping Station was constructed.

1966 Onondaga Lake receives 10 million gallons each day of partially treated sewage from the Ley Creek Sewage Treatment Plant, approximately 40 million gallons each day from the Metropolitan Treatment Plant and an estimated 5 million gallons of waste and storm water, which overflows directly into the creeks. As a result of receiving raw and partially treated sewage for almost a century the layer of organic sludge on the lake bottom is reputedly twelve feet thick in some areas.

1967 The Onondaga County Health Department is formed.

1968 Crucible Steel completed its sanitary sewage separation project by-passing the septic tanks.

The Nine Mile Sanitary District Treatment Plant, located at the site of the old Orchard Village Treatment Plant, is placed into operation.

1969 The Ley Creek Plant discharge began being pumped to the Metropolitan Plant and not to Ley Creek.

Early 1970s The company embarked on an industrial waste pretreatment program requiring the industries to remove any toxic pollutants such as, heavy metals or anything that might interfere with the treatment processes.

1972	A ban on phosphorus in detergents was implemented.
1974	Crucible Steel completed a treatment plant to remove chromium and lead prior to the discharge to Onondaga Lake.
1977-1981	County raw sewage is diverted to the lake during Metro construction (secondary completed in 1979).
1979	**Metro was upgraded to secondary treatment and expanded to an 80 million gallon per day capacity.**
1981	**The plant process was upgraded to tertiary treatment in May. The process removes phospherous to less than 1 ppm using the Allied Solvay process waste, rich in calcium and lime.**
1986	Allied-Signal closes all of its operations in Solvay.
1989	Consent judgement signed by the Atlantic States Legal Foundation and the State of New York as plaintiffs and Onondaga County and Onondaga County Department of Drainage and Sanitation as defendents.

ONONDAGA COUNTY PUBLIC ENTITIES

Significant Findings:

"Summary of Studies Made By the State Departments of Health and Conservation With Regard to the Water of Onondaga Lake" (1947) as quoted in:
"Pollution Survey of Onondaga Lake & Tributaries within the City of Syracuse, N.Y." by the Department of Engineering, Nelson F. Pitts - City Engineer 1948

"2. The Lake water has a high bacterial content resulting from discharge into it of raw and inadequately treated sewage."

"3. Onondaga Lake is also subject to pollution from putrescible organic matter because of inadequate treatment of sewage by the Syracuse disposal plant and because of flows into the Lake from polluted streams. The discharge of primary treated sewage from the Syracuse plant is the largest single factor which depletes the oxygen supply in the lake."

"6. Because of sewage discharges, the oxygen supply of the Lake would be less than that required to maintain fish life even is there were no industrial waste discharged into the lake.

"Pollution Survey of Onondaga Lake & Tributaries within the City of Syracuse, N.Y." by the Department of Engineering, Nelson F. Pitts - City Engineer 1948

page 48:
Settled sludge from the present [sewage treatment] plant is pumped through a five inch wrought iron main to the Solvay Process Company's waste disposal lagoons.

"Report on Survey of Onondaga Lake, July, 1959 to September, 1962 to New York State Department of Health" by Onondaga County Department of Public Works, April 1, 1963

The Metropolitan Syracuse Treatment Plant was constructed to replace the old overloaded plant which was operated by the City of Syracuse. The new plant now serves nearly all of the City of Syracuse, the West Side Sanitary District which includes large areas in the towns of Geddes and Camillus as well as the Village of Solvay, and the

Liverpool Sanitary District which includes the Village of Liverpool.

Page 6:
First the appearance of the lake's water, surface and shoreline has changed. The floating masses of sludge and scum, oil slicks and grease which were formerly in evidence are no longer to be found. The shoeline which was once often coated with heavy deposits of grease and slime is now reasonably clean.

Page 8:
Raw sewage from the Village of Solvay and the Solvay Process Division which was formerly discharged directly to the lake is now pumped to the Metropolitan Syracuse Treatment Plant for treatment.

The Village of Liverpool has aboandoned its heavily overloaded treatment plant which discharged its effluent to Onondaga Lake in favor of pumping its raw sewage to the Metropolitan Syracuse Treatment Plant for treatment.

Some of the known pollutants into Ley Creek are:

Industrial Waste:
- Carrier Corporation
- Crouse-Hinds
- Syracuse City Storm Seweres
- Fisher Guide Division of General Motors

Refuse Disposal Drainage:
- Salina town dump
- Syracuse City dumps (2)
- Private dumps (3)

Industrial Waste to Onondaga Creek:

liquid wastes including solids from Meat Packing Plant;
oily liquid wastes from laundry;
greenish wash water from the lumber yard;
oil exhaust of steam engine at lumber yard;
soapy wash water from truck garage.

S16
"An Environmental Assessment of Onondaga Lake and its Major Contributory Streams" prepared by Onondaga Lake Scientific Council, March 12, 1966

Page 19:
Even today, however, Onondaga Lake receives 10 million gallons each day of partly treated sewage from the Ley Creek Sewage Treatment Plant, approximately 40 million gallons each day of effluent from the Metropolitan Treatment Plant and an estimated five million gallons of waste and storm water which overflows directly into the creeks.

As a result of receiving raw or partially treated sewage for almost a century, biological reactions have produced a thick layer of organic sludge on the bottom of the Lake. This bottom sludge is reputedly 12 feet deep in some areas.

Page 24:
One aspect of inorganic chemistry in Onondaga Lake that has not received proper recognition is that of heavy metals. Discharges from metal processing plants bring significant quantities of copper and other metal wastes into the Lake.

Page 31:
A Department of Public Works dump borders Ley Creek on the northwest side, extending from Park Street through to 7th North Street opposite the Ley Creek Treatment Plant.

The dump on the northwest bank is being used as a landfill operation. Adjacent to the Ley Creek Treatment Plant some dumping of chemical wastes and asphalt paving materials has taken place. Surface run-off water was observed running into the stream in a highly contaminated condition.

At Wolf Street bridge over Ley Creek, the creek shows evidence of heavy pollution from the Town of Salina dump on the north bank and building material waste on the west side of the road.

Page 33:
The high B.O.D. counts and low to zero D.O. at the 7th North Street and Park Street sampling points are evidence of the poor quality of the Ley Creek Treatment Plant's effluent, which discharges upstream of the 7th North Street Bridge.

Page 34-35:
Since the Onondaga Creek and Harbor Brook intercepting sewers were first installed, very little maintenance work has been done, resulting in sanitary sewage overflowing to the streams at many locations.

Page 37:
First, in terms of total nitrogen and phosphorus contamination of the lake, the Metropolitan Treatment plant is the biggest single contributor.

Pages 40-42:
Sewage from the village of Marcellus is discharged into Nine Mile Creek after receiving primary treatment. Although the plant is modern and meets present stream standards, organic enrichment of Nine Mile Creek is noticeable below this point.

The remainder of the sewage from the village of Camillus passes through an antiquated primary treatment plant constructed in the 1930's. Also periodically, untreated sewage from the State Exposition grounds is discharged into Nine Mile Creek.

"Syracuse Magazine" May, 1982

Municipal waste from Metro and industrial waste from Allied Chemical and Crucible Steel have been the lake's major sources of pollution.

"Industrial Discharges in the Ley Creek Sanitary District"
Onondaga Lake Watershed, March 1, 1969
Prepared by Roy F. Weston, Environmental Engineers

The overall wastewater survey indicated that industrial organic pollution consisted in large part (80-90%) of the discharge from Bristol Laboratories. Bristol Laboratories contributes approximately 50% of the total organic load received at the Ley Creek Sewage Treatment Plant. Unacceptable concentration levels of metals and cyanides were being discharge by various plating operations although no toxicity problem could be readily demonstrated in the Ley Creek Sewage Treatment Plant Influent.

The Crouse Hinds Company and Syracuse China Corporation were found to discharge unacceptable levels of pollutants directly to Ley Creek.

Page 11:
A number of industries discharge significant concentrations of metals and cyanidies to the Ley Creek Sewage System.

"Onondaga Lake Study" by Onondaga County for the Water Quality Office EPA; O'Brien & Gere Engineers, Inc.

April, 1971

Separate chemical analyses were conducted on a stream emanating from an extensive landfill operation located just north of the Ley Creek discharge. These analyses showed high BOD and nitrogen concentrations. It was noted that amounts discharged by Ley Creek substantially exceed amounts discharged from the Ley Creek Treatment Plant in many cases. These differences could be accounted for by leaching of this landfill operations.

"Hazardous Waste: Peril in Our Backyard, A Study of Hazardous Waste Disposal and Contamination in Onondaga County, New York" by Timothy J. Brachocki, Dec. 14, 1983

New York State Pollutant Discharge Elimination Permit (SPDES) Number: NY 0027081

The Metropolitan Wastewater Treatment Plant (Metro) is the largest wastewater treatment facility in the area. This tertiary treatment facility utilizes activated sludge, chlorination and tertiary treatment for phosphorus removal to process an average of 64.2 million gallons per day of combined sanitary and industrial wastewater. The Metro plant serves the city of Syracuse and several surrounding towns and villages.

According to the Department of Drainage and Sanitation, 73 industries are on line to the Metro plant and 29 are classified by the department as dischargers of wastewaters containing toxic chemicals. Forty-nine of these industries responded positively to the Industrial Chemical Survey (ICS), contributing a total of 7.1 mgpd of wastewater to the facility.

Of these 49 industries, only 14 have had their effluent tested for 129 priority pollutants and all 14 were found to have synthetic organic pollutants in their waste stream. Even though these 14 industries are known to be discharging process wastewater polluted with toxic chemicals, and others are suspected to be, no comprehensive pretreatment program has been instituted. Only 17 companies provide pretreatment at all and not one provides adequate pretreatment for the removal of the broad spectrum of wastes found in its wastestream. Sampling has not been performed on all potential organic dischargers to identify the toxic compounds present in their wastestreams. Nor have strict numerical standards been set to curtail the release of toxic organic compounds.

The Metro SPDES Permit limits the following: flow, pH, phosphorus, fecal coliform, suspended solids, BOD-5 and settleable solids, and chlorine.

The Metro plant's influent, effluent and sludge were analyzed for 129 priority pollutants in the summer of 1980. Although most of the pollutants appear to have been removed, two showed up in the digested sludge with one chemical's concentration increased. Another sample of sludge was tested on August 6, 1980 and found to contain 1594 ppb of PCBs.

"Onondaga Lake Symposium Proceedings" 1984

The biggest problem with the lake, regardless of what you may have heard, is the fact that we have been dumping sewage, or were dumping sewage into it, for almost 100 years. It was the daily input of organic material that was the biggest deleterious factor associated with Onondaga Lake.

Although the major problem with the lake over the years was continual daily discharge of raw or inadequately treated sewage to the lake, the Metropolitan Treatment Plant provides treatment only to the greatest source of organic pollution. The problem with the intercepting sewers still remains. When the county took over the interceptor sewers from the city, we discovered that approximately 15 million gallons per day of raw sewage were being discharged during dry weather. [John Hennigan, County Department of Drainage and Sanitation]

"Lead Contaminates Syracuse China's Field", Post Standard 6/26/91

A 13 acre field of broken pottery, known as Pottery Field, behind Syracuse China Corporation is contaminated with hazardous lead. The land off of Factory Avenue has been the dumping ground for broken pottery since the 1920's.

Lagoons on the property, used for decades by Syracuse China to drain lead-contaminated wastewater from their china glazing process are the problem. The water from the lagoons drained into nearby wetlands and eventually into Ley Creek. Chester Amond, president of the company, said that the company does not plan on dumping wastewater into the lagoons much longer. The company's redesigned process now recycles all the lead.

The site also was used for years as a public dump and as a dump for storm sewer debris by Syracuse and the towns of Salina and DeWitt.